

SEQUENCE LISTING

<110> Estell, David A.

<120> Proteases From Gram-Positive Organisms

<130> GC381-US

<140> US 09/462,846

<141> 2000-01-13

<150> PCT/US98/19529

<151> 1998-07-14

<150> EP 97305227.7

<151> 1997-07-15

<160> 7

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 945

<212> DNA

<213> Bacillus subtilis

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gccgcgcatac aaaatggtca aagcgttgtt caaaacggaa tgtataaggg	gttcacgctc	180
agcgaattat gggAACATCA cagacattta ttccggacagc ttgaagggga	ccgtttccct	240
ctgcttacaa aaatattaga tgctgaccag gacttatctg ttccagggtca	tccgaatgtat	300
gaatatgc当地 acatacatga aaacgggtgag ctggaaaaaa cagaatgtcg	gtacattatt	360
gattgc当地 aaagatgccga gattattat ggccacaatg caacaacaaa	ggaagaacta	420
actaccatga tagagcgtgg agaatgggat gagcttgc gccgtgtaaa	ggtaaagccg	480
ggggattttt tctatgtgcc aagcggtaact gttcatgc当地 ttggaaaagg	aattcttgct	540
ttggagacgc agcagaactc agacacaacc tacagattat atgattatga	ccgaaaagat	600
gcagaaggca agctgc当地 gttcatctg aaaaagagca ttgaagtgtat	agaggccccg	660
tctattccag aacggcatac agttcaccat gaacaaattg aggatttgct	tacaacgaca	720
ttgattgaat ggc当地 tactt ttccgggggg aaatggaact tatcaggatc	agcaagctt	780
aagcagcaaa aaccattcct tcttatactgt gtgattgaag gggagggccg	tatgatctct	840
ggtgagttatg tctatcctt caaaaaagga gatcatatgt tgctgc当地	cggtcttgga	900
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<210> 2

<211> 315

<212> PRT

<213> Bacillus subtilis

<400> 2

Met Thr Thr Glu Pro Leu Phe Phe Lys Pro Val Phe Lys Glu Arg Ile			
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Trp Gly Gly Thr Ala Leu Ala Asp Phe Gly Tyr Thr Ile Pro Ser Gln		
20	25	30

Arg Thr Gly Glu Cys Trp Ala Phe Ala Ala His Gln Asn Gly Gln Ser		
35	40	45

Val Val Gln Asn Gly Met Tyr Lys Gly Phe Thr Leu Ser Glu Leu Trp  
   50                       55                       60  
 Glu His His Arg His Leu Phe Gly Gln Leu Glu Gly Asp Arg Phe Pro  
   65                       70                       75                       80  
 Leu Leu Thr Lys Ile Leu Asp Ala Asp Gln Asp Leu Ser Val Gln Val  
   85                       90                       95  
 His Pro Asn Asp Glu Tyr Ala Asn Ile His Glu Asn Gly Glu Leu Gly  
  100                      105                       110  
 Lys Thr Glu Cys Trp Tyr Ile Ile Asp Cys Gln Lys Asp Ala Glu Ile  
  115                      120                       125  
 Ile Tyr Gly His Asn Ala Thr Thr Lys Glu Glu Leu Thr Thr Met Ile  
  130                      135                       140  
 Glu Arg Gly Glu Trp Asp Glu Leu Leu Arg Arg Val Lys Val Lys Pro  
  145                      150                       155                       160  
 Gly Asp Phe Phe Tyr Val Pro Ser Gly Thr Val His Ala Ile Gly Lys  
  165                      170                       175  
 Gly Ile Leu Ala Leu Glu Thr Gln Gln Asn Ser Asp Thr Thr Tyr Arg  
  180                      185                       190  
 Leu Tyr Asp Tyr Asp Arg Lys Asp Ala Glu Gly Lys Leu Arg Glu Leu  
  195                      200                       205  
 His Leu Lys Lys Ser Ile Glu Val Ile Glu Val Pro Ser Ile Pro Glu  
  210                      215                       220  
 Arg His Thr Val His His Glu Gln Ile Glu Asp Leu Leu Thr Thr Thr  
  225                      230                       235                       240  
 Leu Ile Glu Cys Ala Tyr Phe Ser Val Gly Lys Trp Asn Leu Ser Gly  
  245                      250                       255  
 Ser Ala Ser Leu Lys Gln Gln Lys Pro Phe Leu Leu Ile Ser Val Ile  
  260                      265                       270  
 Glu Gly Glu Gly Arg Met Ile Ser Gly Glu Tyr Val Tyr Pro Phe Lys  
  275                      280                       285  
 Lys Gly Asp His Met Leu Leu Pro Tyr Gly Leu Gly Glu Phe Lys Leu  
  290                      295                       300  
 Glu Gly Tyr Ala Glu Cys Ile Val Ser His Leu  
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<210> 3  
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 <212> PRT  
 <213> Bacillus subtilis

<400> 3

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  20                      25                       30  
 Cys Trp Ala Phe Ser Ala Val Val Thr Ile Glu Gly Ile Ile Lys Ile  
  35                      40                       45  
 Arg Thr Gly Asn Leu Asn Glu Tyr Ser Glu Gln Glu Leu Leu Asp Cys  
  50                      55                       60  
 Asp Arg Arg Ser Tyr Gly Cys Asn Gly Gly Tyr Pro Trp Ser Ala Leu  
  65                      70                       75                       80  
 Gln Leu Val Ala Gln Tyr Gly Ile His Tyr Arg Asn Thr Tyr Pro Tyr  
  85                      90                       95  
 Glu Gly Val Gln Arg Tyr Cys Arg Ser Arg Glu Lys Gly Pro Tyr Ala  
  100                     105                       110  
 Ala Lys Thr Asp Gly Val Arg Gln Val Gln Pro Tyr Asn Glu Gly Ala  
  115                     120                       125

Leu	Leu	Tyr	Ser	Ile	Ala	Asn	Gln	Pro	Val	Ser	Val	Val	Leu	Glu	Ala
130					135						140				
Ala	Gly	Lys	Asp	Phe	Gln	Leu	Tyr	Arg	Gly	Gly	Ile	Phe	Val	Gly	Pro
145					150					155				160	
Cys	Gly	Asn	Lys	Val	Asp	His	Ala	Val	Ala	Ala	Val	Gly	Tyr	Gly	Pro
					165					170				175	
Asn	Tyr	Ile	Leu	Ile	Lys	Asn	Ser	Trp	Gly	Thr	Gly	Trp	Gly	Glu	Asn
					180					185				190	
Gly	Tyr	Ile	Arg	Ile	Lys	Arg	Gly	Thr	Gly	Asn	Ser	Tyr	Gly	Val	Cys
					195					200				205	
Gly	Leu	Tyr	Thr	Ser	Ser	Phe	Tyr	Pro	Val	Lys	Asn				
					210					215				220	

<210> 4  
 <211> 948  
 <212> DNA  
 <213> Bacillus subtilis

<400> 4

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ttgatcgagc	tttgggaaga	gcaccgtgaa	gtattcggcg	gcgttagaggg	ggatcggttt	240
ccgcttctga	caaagctgct	ggatgtgaag	gaagatacgt	caattaaagt	tcaccctgat	300
gattactatg	ccggagaaaa	cgaagaggga	gaactcggca	agacggaatg	ctggcacatt	360
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cttgcacaa	tgatcaacag	cggtgactgg	gagggcctgc	tgcgaagaat	caaattaaa	480
ccgggtgatt	tcttattatgt	gccgagcgg	acgctgcacg	cattgtgcaa	gggggccctt	540
gttttagaga	ctcagcaaaa	ttcagatgcc	acataccggg	tgtacgatta	tgaccgtctt	600
gatagcaacg	gaagtccgag	agagcttcat	tttgccaaag	cggtaatgc	cgccacggtt	660
ccccatgtgg	acgggtatat	agatgaatcg	acagaatcaa	gaaaaggaat	aaccattaaa	720
acatttgtcc	aaggggaata	ttttcggtt	tataaatggg	acatcaatgg	cgaagctgaa	780
atggctcagg	atgaatcctt	tctgatttgc	agcgtgatag	aaggaagcgg	tttgctcaag	840
tatgaggaca	aaacatgtcc	gtcaaaaaaa	ggtgatcact	ttatttgcc	ggctcaaatg	900
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 <212> PRT  
 <213> Bacillus subtilis

<400> 5

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										20	25			30	
Glu	Ser	Thr	Gly	Glu	Cys	Trp	Ala	Ile	Ser	Ala	His	Pro	Lys	Gly	Pro
										35	40			45	
Ser	Thr	Val	Ala	Asn	Gly	Pro	Tyr	Lys	Gly	Lys	Thr	Leu	Ile	Glu	Leu
										50	55			60	
Trp	Glu	Glu	His	Arg	Glu	Val	Phe	Gly	Gly	Val	Glu	Gly	Asp	Arg	Phe
										65	70			75	80
Pro	Leu	Leu	Thr	Lys	Leu	Leu	Asp	Val	Lys	Glu	Asp	Thr	Ser	Ile	Lys
										85	90			95	
Val	His	Pro	Asp	Asp	Tyr	Tyr	Ala	Gly	Glu	Asn	Glu	Gly	Glu	Leu	
										100	105			110	
Gly	Lys	Thr	Glu	Cys	Trp	Tyr	Ile	Ile	Asp	Cys	Lys	Glu	Asn	Ala	Glu

115	120	125
Ile Ile Tyr Gly His Thr Ala Arg Ser Lys	Thr Glu Leu Val Thr Met	
130	135	140
Ile Asn Ser Gly Asp Trp Glu Gly Leu Leu	Arg Arg Ile Lys Ile Lys	
145	150	155
160		
Pro Gly Asp Phe Tyr Tyr Val Pro Ser Gly	Thr Leu His Ala Leu Cys	
165	170	175
Lys Gly Ala Leu Val Leu Glu Thr Gln Gln	Asn Ser Asp Ala Thr Tyr	
180	185	190
Arg Val Tyr Asp Tyr Asp Arg Leu Asp Ser Asn	Gly Ser Pro Arg Glu	
195	200	205
Leu His Phe Ala Lys Ala Val Asn Ala Ala	Thr Val Pro His Val Asp	
210	215	220
Gly Tyr Ile Asp Glu Ser Thr Glu Ser Arg	Lys Gly Ile Thr Ile Lys	
225	230	235
240		
Thr Phe Val Gln Gly Glu Tyr Phe Ser Val	Tyr Lys Trp Asp Ile Asn	
245	250	255
Gly Glu Ala Glu Met Ala Gln Asp Glu Ser	Phe Leu Ile Cys Ser Val	
260	265	270
Ile Glu Gly Ser Gly Leu Leu Lys Tyr Glu Asp	Lys Thr Cys Pro Leu	
275	280	285
Lys Lys Gly Asp His Phe Ile Leu Pro Ala Gln	Met Pro Asp Phe Thr	
290	295	300
Ile Lys Gly Thr Cys Thr Leu Ile Val Ser His	Ile	
305	310	315

&lt;210&gt; 6

&lt;211&gt; 945

&lt;212&gt; DNA

&lt;213&gt; Bacillus subtilis

&lt;400&gt; 6

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tctgcacatg cccatggctc gtcgtctgtta aaaaatggcc cgctggcagg	aaagacactt	180
gatcaagtat ggaaagatca tccagagata ttcgggtttc cgatggtaa	ggtgtttccg	240
ctgctggtaa agctgctgga cgccaatatg gatctctccg tgcaagtcca	tcctgtatgtat	300
gattatgcaa aactgcacga aaatggcgac cttggtaaaa cggagtgcgtg	gtatatcatt	360
gattgcaaag atgacgccga actaattttt ggacatcatg caagcacaaa	ggaagagttc	420
aaacaacgaa tagaaagcg tagattggAAC gggctgctga ggcgaatcaa	aatcaagcca	480
ggagatttct ttatgtgcc aagcggtaca ctccatgctt tatgtaaagg	aacccttgtc	540
cttggaaatcc agcaaaactc tgataacaaca tatcgcttat acgattatga	ccgctgtat	600
gaccaggggcc aaaaaagaac tcttcataata gaaaaagcca tggaaagtcat	aacgataccg	660
catatcgata aagtgcatac accggaagta aaagaagttt gtaacgctga	gatcattgtt	720
tatgtgcaat cagattattt ctcagtgtac aaatgaaaga tttagcggccg	agctgctttt	780
ccttcataatc aaacctatTTT gctggggagt gttctgagcg gatcaggacg	aatcataaat	840
aatggtattc agtatgaatg caatgcaggc tcacactta ttctgcctgc	gcattttgga	900
gaatTTacaa tagaaggaac atgtgaattc atgatatctc atcct		945

&lt;210&gt; 7

&lt;211&gt; 315

&lt;212&gt; PRT

&lt;213&gt; Bacillus subtilis

&lt;400&gt; 7

Met Thr His Pro Leu Phe Leu Glu Pro Val Phe Lys Glu Arg	Leu Trp	
1	5	10
		15

Gly Gly Thr Lys Leu Arg Asp Ala Phe Gly Tyr Ala Ile Pro Ser Gln  
20 25 30  
Lys Thr Gly Glu Cys Trp Ala Val Ser Ala His Ala His Gly Ser Ser  
35 40 45  
Ser Val Lys Asn Gly Pro Leu Ala Gly Lys Thr Leu Asp Gln Val Trp  
50 55 60  
Lys Asp His Pro Glu Ile Phe Gly Phe Pro Asp Gly Lys Val Phe Pro  
65 70 75 80  
Leu Leu Val Lys Leu Leu Asp Ala Asn Met Asp Leu Ser Val Gln Val  
85 90 95  
His Pro Asp Asp Asp Tyr Ala Lys Leu His Glu Asn Gly Asp Leu Gly  
100 105 110  
Lys Thr Glu Cys Trp Tyr Ile Ile Asp Cys Lys Asp Asp Ala Glu Leu  
115 120 125  
Ile Leu Gly His His Ala Ser Thr Lys Glu Glu Phe Lys Gln Arg Ile  
130 135 140  
Glu Ser Gly Asp Trp Asn Gly Leu Leu Arg Arg Ile Lys Ile Lys Pro  
145 150 155 160  
Gly Asp Phe Phe Tyr Val Pro Ser Gly Thr Leu His Ala Leu Cys Lys  
165 170 175  
Gly Thr Leu Val Leu Glu Ile Gln Gln Asn Ser Asp Thr Thr Tyr Arg  
180 185 190  
Val Tyr Asp Tyr Asp Arg Cys Asn Asp Gln Gly Gln Lys Arg Thr Leu  
195 200 205  
His Ile Glu Lys Ala Met Glu Val Ile Thr Ile Pro His Ile Asp Lys  
210 215 220  
Val His Thr Pro Glu Val Lys Glu Val Gly Asn Ala Glu Ile Ile Val  
225 230 235 240  
Tyr Val Gln Ser Asp Tyr Phe Ser Val Tyr Lys Trp Lys Ile Ser Gly  
245 250 255  
Arg Ala Ala Phe Pro Ser Tyr Gln Thr Tyr Leu Leu Gly Ser Val Leu  
260 265 270  
Ser Gly Ser Gly Arg Ile Ile Asn Asn Gly Ile Gln Tyr Glu Cys Asn  
275 280 285  
Ala Gly Ser His Phe Ile Leu Pro Ala His Phe Gly Glu Phe Thr Ile  
290 295 300  
Glu Gly Thr Cys Glu Phe Met Ile Ser His Pro  
305 310 315